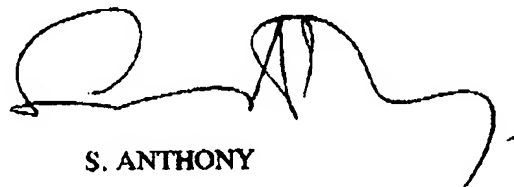


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Date: 13 July 2004



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For and on behalf of RWS Group Ltd

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Musical instrument having a ribbed surface

## Description:

5 *Prior art*

Musical instruments produce sound waves by means of vibration and reinforce them via a resonator. Sound waves are triggered by vibrating strings, air columns, diaphragms or plates. Ribbings, as a further possibility for producing sound are used, in particular, in the case of sound instruments.

By definition, a musical instrument is an implement for producing notes and sounds, in order to make music. It is distinguished by the fact that at least one player actively operates it and thereby creates music.

Sounds can be stored mechanically, magnetically or optically in the form of prepared surfaces and can be reproduced. The possibilities of producing sounds by means of prepared surfaces are also known in road building (Pat. A1 WO 01/32989 and others). However, these applications do not involve a musical instrument in the actual sense, but rather a type of sound-recording medium which, similar to a record, is played by moving over it. In these cases, no creative activity by the consumer is expected.

*Description of the invention*

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In the case of the musical instrument according to patent claim 1, a sound is produced in the same manner as when playing the "Guiro" (fig. 1), a Latin American rhythm instrument comprising a longish gourd having a regularly notched surface, by scratching it with the fingernail or playing it with a playing aid. In contrast to the "Guiro" or else to the percussion

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instrument "skiffle board", in the case of the musical instrument according to the invention, relative sounds can be built up from individual modules or sections. Musical instruments therefore also differ from sound-  
5 recording media, such as the record or road grooves which can be moved over, which are based on the same principle as producing sound, in precisely the same manner as an electric piano differs from a radio. The transverse grooves on the carriageway produce sounds,  
10 notes and sequences of notes in interaction with the tires of vehicles traveling over them. However, the recipient, as in the case of the radio set, can only have an effect on the creation to a very limited extent: drive over it versus not drive over it or  
15 switch on versus switch off. For this reason, the use of the corresponding sound production principle on public roads does not involve a musical instrument in the actual sense.

Playing the musical instrument according to the  
20 invention at a constant tempo makes it possible to produce analogous rhythms, on account of the interval ratios which are present, and also sequences of notes, by combining different frequencies. The playing and combining of excerpts of created rows of sounds and the  
25 combination with different musical instruments makes musical composition techniques, such as sampling, pattern technique and Minimal Art come alive. As a result, in addition to the playing and entertainment value, the instrument has a high pedagogical value. In  
30 contrast to the use on roads, the combination of modules is creatively designed and changed by the players themselves.

Particular embodiments of the instrument and of the playing aid in different materials produce many nuances  
35 in sound which additionally challenge the creativity and curiosity of the player. Possible materials are: wood, cardboard, plastic, metal, ceramic, stone. A

further embodiment of the invention constitutes the virtual realization on a viewing screen. The instrument can then be sold on CD or can be accessible on the Net.

5 *List of figures*

Fig. 1 Guiro

Fig. 2 instrument for scratching

Figs. 3a-k individual modules

10 Fig. 4 ribbings

Fig. 5 module

Fig. 6 coupling piece

*Design of the instrument*

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The musical instrument comprises sections or modules having a regularly ribbed or studded surface. These ribbings may differ in design (fig. 4), since their shape is not crucial for the sound. A critical factor for the frequency which arises at a constant tempo  $x$  is the wavelength of the ribbing.

20 Rhythmic rows of sounds can be built up from individual sections and spaces or from combinations of the modules. If a plurality of wavelengths are used, melodically rhythmic rows of sounds are produced in combined form. The instrument is designed in various forms:

- 30 (1) As a band or strip of cardboard or plastic, so that it can be cut to a desired length, for example, from the roll by the user himself. The different frequencies may be identified by a different color in each case. For easier fixing on a base, the band may be equipped with an adhesive device and, as an orientation aid for cutting it into lengths, may be provided with a graduation.
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- (2) As modules having different ratios of ribbed and

unribbed surface (figs. 3a-k). These modules can be connected rigidly to a coupling, specifically in such a manner that the modules can be connected both to opposite sides and also to the same sides. The modules may be formed from wood, cardboard, metal, plastic, rubber, ceramic or stone. The connection may be designed, for example, as an asymmetric plug-in coupling, snap fastener or magnetic coupling or may be realized with an additional coupling piece (figs 5-6).

(3) As modules of identical size with ribbed surfaces in different frequencies or frequency variations. These modules may be connected to one another longitudinally and/or laterally. Rows of sounds or entire areas may be built up with them.

(4) As modules with a square cross section and longitudinal sides with different ribbings. By fixing them in a rail, new musical results can be obtained by simple rotation and displacement of individual modules.

The rows of sounds which are formed from different sections or modules may be played with the fingernail, but also with a playing aid. This playing aid is a pencil, a resilient pointer, a slider or a roller of wood (e.g. an ice lolly stick), plastic (e.g. a credit card), metal (e.g. a teaspoon), horn or cardboard which snaps into the ribbing in a rapid sequence corresponding to the playing tempo and thereby produces the sound. The playing aid can be moved over the row of sounds held in the hand or else clamped into a slide or carriage. A different sound is produced depending on the material, size, shape and manner of fixing the playing aid. The dimensions of the modules, in particular the width thereof, do not have any decisive effect on the phenomenon on which the invention is based. Solutions which are played by means of

skateboards, pushchairs etc., are therefore also conceivable.

In a software variant, the geometrical features are expressed pictorially. The surface of the instrument has virtual ribbing, with it being possible for the virtual ribbing to be illustrated by different coloring of the high and low regions of the ribbing, or more precisely, different coloring of the ribbed and of the flat regions. In side view, the ribbings may, of course, also be illustrated geometrically, but do not have to be. The underside of the modules is then stuck on a virtual table or a virtual resonator. The individual modules may be cut to length, for example with the aid of the computer mouse, scissors or a knife, with it being possible for the grid of the graduation to be configured in such a manner that cutting can only take place along the grid lines. In exactly the same way as in the hardware version, the different frequencies are emphasized by different coloring. Opposite sides A and B have a matching, mirror-inverted coupling. The realization of a magnetic coupling then means that the modules are attracted towards one another in a manner suitable for their poles as soon as they have been pushed sufficiently close toward one another with the mouse. It is possible to influence the sound by means of different playing aids and different bases.

It is also conceivable that the computer can be used to place one's own sound samples (via a microphone or line input) or samples from data files onto the modules. There is then, firstly, the possibility of placing a sound onto the entire set of modules, but also the variant that an entire song is loaded onto a long, ribbed strip which then, cut into sections, can be combined in new ways.